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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,991	03/29/2001	Yoshiharu Hirakata	740756-2285	4863

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EXAMINER	
DUDEK, JAMES A	
ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/819,991	HIRAKATA ET AL.	
	Examiner	Art Unit	
	James A. Dudek	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 24-52* is/are pending in the application.

4a) Of the above claim(s) *39-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21,24-38 and 46-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,148,301 ("301") in view of 5,406,399 ("399") and further in view of US Patent 5,016,987 ("987").

Per claims 1, 301 teaches a first substrate [101 shown in figure 4] and a second substrate [102] being bonded to each other with a gap provided therebetween [liquid crystal is in the gap and seal 108 bonds the substrates]; a pixel matrix circuit [see 104 and 103] and a driver circuit for driving the pixel matrix circuit [see 113], each of the pixel matrix circuit and the driver circuit being formed over the first substrate [see figure 4].

Lacking is the adhesive layer being formed closely to the sides of portions of the first and second substrates opposed to each other and a tape being formed closely to the adhesive layer. However, 399 teaches an adhesive layer being formed closely to the sides of portions of the first and second substrates opposed to each other [bonding agent 20 shown in figure 1]; and a tape being formed closely to the adhesive layer [see frame 17, this is not a tape but is a resin mold or frame; examiner asserts that using a tape would have been an obvious variation of the frame 17.] At column 2, 399 teaches using the adhesive 20 and frame 17 to prevent chipping of the substrates. Accordingly, it would have been obvious to one of ordinary skill at the time the

invention was made to combine the frame and adhesive of 399 with the cell of 301 to protect the cell of 301.

Regarding the substitution of using a tape in place of the frame 17, examiner asserts this is a matter of design choice. Using a molded frame instead of tape would offer more protection compared to tape. However, a molded frame requires more manufacturing steps and increases manufacturing complexity compared with using tape. Accordingly, one of ordinary skill would have to choose between increased protection and increased costs due to increase manufacturing steps and complexity and decrease protection and decreased costs.

301 lacks the "at least one end force of the first substrate and the second substrate is tapered." However, 987 teaches tapering the edge of a substrate in order to achieve longer cell life [see column 2, last full paragraph.] Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the taper of the 987 patent with the 301 patent.

Regarding the tapered portion covered by the adhesive layer and the tape or frame. The tape and adhesive of US patent 399 would cover the taper portion of patent 987. Thus with the new combination this limitation is obvious for the reasons stated above.

Per claim 5, 301 teaches a first substrate [101 shown in figure 4] and a second substrate [102] being bonded to each other with a gap provided therebetween [liquid crystal is in the gap and seal 108 bonds the substrates]; a pixel matrix circuit [see 104 and 103] and a driver circuit for driving the pixel matrix circuit [see 113], each of the pixel matrix circuit and the driver circuit being formed over the first substrate [see figure 4].

Lacking is the adhesive layer being formed closely to the sides of portions of the first and second substrates opposed to each other; and a frame member being formed closely to the adhesive layer. However, 399 teaches an adhesive layer being formed closely to the sides of portions of the first and second substrates opposed to each other [bonding agent 20 shown in figure 1]; and a frame member being formed closely to the adhesive layer [see resin mold frame 17 or frame]. At column 2, 399 teaches using the adhesive 20 and frame 17 to prevent chipping of the substrates. Accordingly, it would have been obvious to one of ordinary skill at the time

the invention was made to combine the frame and adhesive of 399 with the cell of 301 to protect the cell of 301.

301 lacks the "at least one end force of the first substrate and the second substrate is tapered." However, 254 teaches tapering the edge of a substrate in order to protect leads [see column 3, 4th full paragraph.] Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to the taper of 354 with 301.

Per claims 2 and 6, see rejection of claim 16 below.

Per claims 4 and 8, see figures.

Per claims 3 and 7, this would have been well known in order to maintain a strong bonding between the cell and the tape or frame. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to use an adhesive having a heat conductivity lower than the tape or frame in order to maintain a strong bond when the layers expend when heated up.

Per claim 9, 301 teaches a first substrate [101 shown in figure 4] and a second substrate [102] being bonded to each other with a gap provided therebetween [liquid crystal is in the gap and seal 108 bonds the substrates]; a pixel matrix circuit [see 104 and 103] and a driver circuit for driving the pixel matrix circuit [see 113], each of the pixel matrix circuit and the driver circuit being formed over the first substrate [see figure 4].

399 teaches an adhesive disposed on at least one side edge of the first substrate and one side edge of the second substrate to fill an opening therebetween [see adhesive 20 which covers both side edges the substrates 1 and 2 and extends across the gap; it is in contact with the LC]; and a tape covering said adhesive wherein said tape extends beyond edges of the adhesive to cover portions of the first and second substrates [tape is not actually disclosed but was addressed with claim 1, the mold resin 17 extends beyond the surface of the substrate and the adhesive].

Per claim 10, 301 teaches the display device according to claim 9 wherein said display device is a liquid crystal device. See liquid crystal layer 109.

Per claim 11, 301 teaches the display device according to claim 9 wherein said display device is an EL display device, it is well known to replace liquid crystal material with EL material in order to eliminate a backlight. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made.

Per claim 12, 301 teaches the display device according to claim 9 further comprising a driver circuit formed over the first substrate for driving said pixel matrix circuit, see claim 1 rejection.

Per claim 13, 301 teaches the display device according to claim 9, but lack said tape comprises a metallic material. This limitation is also a matter of design choice. Adding a metallic material to the tape would increase the rigidity of the tape and also increase the cost. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to add metal to the tape of 399.

Per claim 14, 301 teaches the display device according to claim 9 but lacks said adhesive comprises a UV setting resin. However, 399 discloses using a heat bonding adhesive for higher adhesion strength. UV bonding also offers higher adhesive strength and was a well known adhesive. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to use a UV bonding adhesive as an adhesive material for 399.

Per claim 15, 399 teaches the display device according to claim 9 wherein said adhesive comprises a thermosetting resin. See column 4.

Per claims 16, 21, and 28 301 in view of 399 teach the claimed invention except the tape or frame covering said adhesive wherein said tape or frame extends beyond edges of the adhesive to cover portions of the first and second substrates. However, 399 teaches the frame

extending beyond the adhesive and, although not beyond the adhesive, covering a substrate. It would be a matter of design choice to cover both substrates and extend beyond edges of the adhesive as such a modification would increase the manufacturing complexity and decrease the overall strength of bond between the frame and cell.

301 lacks the "at least one end force of the first substrate and the second substrate is tapered." However, 254 teaches tapering the edge of a substrate in order to protect leads [see column 3, 4th full paragraph.] Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to the taper of 354 with 301.

Per claim 17-20, 22-27 and 29-32, see above rejections.

Per claims 33-38, 399 teaches placing the adhesive so that it is not on the surface of either substrate [see figure 1.] Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the adhesive placement of 399 with 399 in order to ease handling of the cell, see abstract.

Claims 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,148,301 ("301") in view of 5,406,399 ("399") and US patent 5,831,710 ("710").

301 in view of 399 and common knowledge teach all limitations of claims 46-52 as outlined above, except the diameter of the patterned gap holding members are 1.5 microns to 2.5 microns and the density of 40 to 160 pieces/mm^2. However, 710 teaches a patterned gap holding members having a diameter of between 1.5 microns to 2.5 microns and a density of 40 to 160 pieces/mm^2 in order to maintain a precise cell gap interest. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the cell of US patent 301 with the spacers of US patent 710.

Response to Arguments

Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 571-272-2290. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

James A. Dudek
Primary Examiner
Art Unit 2871

April 15, 2004